

Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Ammonium dichromate

Reference number(SDS): 53077jis_J_E1-3

Product type:

Reagent

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Oxidizing solids: Category 2

HEALTH HAZARDS

Acute toxicity (Oral): Category 2

Acute toxicity (Dermal): Category 3

Acute toxicity (Inhalation): Category 2

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Respiratory sensitization: Category 1

Skin sensitization: Category 1

Germ cell mutagenicity: Category 1B

Carcinogenicity: Category 1A

Reproductive toxicity: Category 1B

Specific target organ toxicity – single exposure: Category 1 (central nervous system, respiratory system, cardiovascular system, blood system, liver, kidney)

Specific target organ toxicity – repeated exposure: Category 1 (respiratory system)

(Note) GHS classification without description: Not classified/Classification not possible

Label elements



Signal word: Danger

HAZARD STATEMENT

H272–May intensify fire; oxidizer

H300–Fatal if swallowed

H311–Toxic in contact with skin

H330–Fatal if inhaled

H314–Causes severe skin burns and eye damage

H318–Causes serious eye damage

H334–May cause allergy or asthma symptoms or breathing difficulties if inhaled

H317–May cause an allergic skin reaction

H340–May cause genetic defects

H350–May cause cancer

H360–May damage fertility or the unborn child

H370–Causes damage to organs

H372–Causes damage to organs through prolonged or repeated exposure

PRECAUTIONARY STATEMENT

Prevention

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep away from clothing and other combustible materials.

Do not breathe dust/mist.

In case of inadequate ventilation wear respiratory protection.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

Use personal protective equipment as required.

Do not eat, drink or smoke when using this product.

Response

In case of fire: Use water mist to extinguish.

Get medical advice/attention if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

Immediately call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF exposed or concerned: Call a POISON CENTER/doctor/physician.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN: Wash with plenty of soap and water.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

If skin irritation or rash occurs: Get medical advice/attention.

Take off immediately all contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal

Dispose of contents/container in accordance with local/national regulation.

Specific Physical and Chemical hazards

Oxidizing material. Organic or combustible material may catch fire in contact with it.

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Common name, synonyms: Ammonium bichromate

Ingredient name: Ammonium dichromate

Content (%): 98.5 <

Chemical formula: $\text{Cr}_2\text{H}_8\text{N}_2\text{O}_7$

Chemicals No, Japan: 1-273

CAS No.: 7789-09-5

MW: 252.07

ECNO: 232-143-1

Note : The figures shown above are not the specifications of the product.

Components contributing to the hazard

Carcinogenic (Article 57a) in REACH SVHC candidate list

Ammonium dichromate

Mutagenic (Article 57b) in REACH SVHC candidate list

Ammonium dichromate

Toxic for reproduction (Article 57c) in REACH SVHC candidate list

Ammonium dichromate

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

Immediately call a POISON CENTER/doctor/physician.

Keep victim warm and quiet.

Call emergency medical service.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

Remove and isolate contaminated clothing and shoes.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth. Do NOT induce vomiting.

If victim is conscious, give 1 – 2 glasses of water.

Immediately call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Burning sensation. Sore throat. Cough. Wheezing. Laboured breathing. Nausea. Vomiting. Abdominal pain.

Diarrhoea. Shock or collapse.

(Symptoms when skin and/or eye contact)

Conjunctival redness of the eyes. Redness of the skin. Pain. Blurred vision. Severe deep burns.

Indication of any immediate medical attention and special treatment needed

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist to extinguish.

Not combustible but enhances combustion of other substances.

Unsuitable extinguishing media

Dry powder, Foam

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Apply water from a safe distance to cool and protect surrounding area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

Runoff may create fire or explosion hazard.

Methods and materials for containment and cleaning up

With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

※Do NOT absorb in saw-dust or other combustible absorbents.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Keep out of low areas.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/mist.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep away from clothing and other combustible materials.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

May ignite combustibles (wood, paper, oil, clothing, etc.).

Any incompatibilities

Strong bases, Reducing agents, Organic solvents, Combustible substances should not be mixed with the chemicals.

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Contaminated work clothing should not be allowed out of the workplace.

Take off immediately all contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Store in a well-ventilated place. Keep container tightly closed.

Keep cool. Protect from sunlight.

Store in accordance with local/national regulation.

Store locked up.

Container and packaging materials for safe handling data is not available.

Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

Section 8. Exposure controls/personal protection

Control parameters

Control value

Japan control value (1995) $\leq 0.05\text{mg-Cr}/\text{m}^3$

Adopted value

JSOH(1989) $0.05\text{mg-Cr(VI)}/\text{m}^3$

ACGIH(2018) TWA: $0.0002\text{mg-Cr(VI)}/\text{m}^3(\text{I})$;

STEL: $0.0005\text{mg-Cr(VI)}/\text{m}^3(\text{I})$ (Lung & sinonasal cancer; resp tract irr; asthma)

Notation...Skin; DSEN; RSEN

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Wear positive pressure self-contained breathing apparatus (SCBA).

Hand protection

Wear protective gloves.

Inspect before use and replace worn or damaged gloves.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Eye protection

Wear chemical safety goggle.

Wear eye/face protection.

Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Crystals or crystalline powder

Color: Orange~Red

Odor: None

Odor threshold data is not available.

Melting point/Freezing point: 180°C

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature: 225°C

Decomposition temperature: 180°C

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH: 3.0~4.4 (50g/L, 25°C)

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 36 g/100 ml (20°C)

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Vapor density data is not available.

Density and/or relative density: 2.15g/cm³

Relative vapor density (Air=1) data is not available.

Relative density of the Vapor/air - mixture at 20°C (Air = 1) data is not available.

Particle characteristics data is not available.

Other information

Critical temperature data is not available.

Evaporation rate data is not available.

VOC data is not available.

Section 10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

May explode on heating.

The substance is a strong oxidant. It reacts with combustible and reducing materials.

The solution in water is a weak acid.

Reacts violently with organic solvents.

Conditions to avoid

- Contact with incompatible materials.
- Open flames. Heating.

Incompatible materials

- Strong bases, Reducing agents, Organic solvents, Combustible substances

Hazardous decomposition products

- Carbon oxides, Nitrogen oxides, Chrome oxides.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]

- Category 2, Fatal if swallowed

[Data for components of the product]

[GHS Cat. Japan, base data]

- female rat LD50=19mg/kg (ATSDR, 2012)

Acute toxicity (Dermal)

[Product]

- Category 3, Toxic in contact with skin

[Data for components of the product]

[GHS Cat. Japan, base data]

- rabbit LD50=763mg/kg (ATSDR, 2012)

Acute toxicity (Inhalation)

[Product]

- Category 2, Fatal if inhaled

[Data for components of the product]

[GHS Cat. Japan, base data]

- mist: female rat LC50=0.045mg/L/4hr (ATSDR, 2012)

Labor standard law, Japan; Toxic

- Ammonium dichromate

Irritant properties

Skin corrosion/irritation

[Product]

- Category 1, Causes severe skin burns and eye damage

[Data for components of the product]

[GHS Cat. Japan, base data]

- hexavalent chromium compounds: corrosive (EU-RAR, 2005)

Serious eye damage/irritation

[Product]

- Category 1, Causes serious eye damage

[Data for components of the product]

[GHS Cat. Japan, base data]

- Skin Corr./Irrit. : cat 1

Sensitization

Respiratory sensitization

[Product]

- Category 1, May cause allergy or asthma symptoms or breathing difficulties if inhaled

[Data for components of the product]

[GHS Cat. Japan, base data]

- cat. 1; ATSDR, 2012

Skin sensitization

[Product]

Category 1, May cause an allergic skin reaction

[Data for components of the product]

[GHS Cat. Japan, base data]

cat. 1; ATSDR, 2012

Germ cell mutagenicity

[Product]

Category 1B, May cause genetic defects

[Data for components of the product]

[GHS Cat. Japan, base data]

cat. 1B; EU-RAR, 2005

Carcinogenicity

[Product]

Category 1A, May cause cancer

[Data for components of the product]

[GHS Cat. Japan, base data]

cat. 1A; IARC Gr. 1 (IARC, 1990 (Cr(VI) compounds) et al.)

[IARC]

Group 1 : Carcinogenic to humans

[ACGIH]

A1(as Cr(VI))(2018) : Confirmed Human Carcinogen

[JSOH]

Group 1: The agents which are carcinogenic to humans

[NTP]

Known : Known to be Human Carcinogens

[EU]

Category 1B; Substances presumed to have carcinogenic potential for humans

Labor standard law, Japan : Carcinogen

Ammonium dichromate

Reproductive toxicity

[Product]

Category 1B, May damage fertility or the unborn child

[Data for components of the product]

[GHS Cat. Japan, base data]

cat. 1B; Water-soluble chromium(VI)

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]

Category 1, Causes damage to organs

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

blood system, cardiovascular system, liver, central nervous system, respiratory system,
kidneys (ATSDR, 2012)

STOT-repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

respiratory system (CICAD 78, 2013)

Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

Toxicity data is not available.

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Dispose of contents/container in accordance with local/national regulation.

Section 14. Transport Information

UN No., UN CLASS

UN Number or ID Number : 1439

UN Proper Shipping Name :

AMMONIUM DICHROMATE

Class or division (Transport hazard class) : 5.1

Packing group : II

ERG GUIDE No.: 141

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 1439

UN Proper Shipping Name :

AMMONIUM DICHROMATE

Class or division (Transport hazard class) : 5.1

Packing group : II

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 1439

UN Proper Shipping Name :

AMMONIUM DICHROMATE

Class or division (Transport hazard class) : 5.1

Hazard labels : Oxidizer

Packing group : II

Environmental hazards

Marine pollutants (yes/no) : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

MARPOL Annex V – HME (Harmful to the Marine Environment)

Germ cell mutagenicity: cat.1, 1A, 1B

Ammonium dichromate

Carcinogenicity: cat.1, 1A, 1B

Ammonium dichromate

Reproductive toxicity: cat.1, 1A, 1B

Ammonium dichromate

Specific target organ toxicity – repeated exposure: cat.1

Ammonium dichromate

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

List of substances subject to authorisation (REACH, Annex XIV)/SVHC – candidate list

Carcinogenic (Article 57a)

Ammonium dichromate

Mutagenic (Article 57b)

Ammonium dichromate

Toxic for reproduction (Article 57c)

Ammonium dichromate

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

7789-09-5

All components are listed or exempted.

Superfund Amendments and Reauthorizations Act (SARA), Title III

SARA 313 (TRI)

Ammonium dichromate

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

Section 16. Other information

GHS classification and labelling

H272–Oxidising Solids, Category 2: H272 May intensify fire; oxidiser

H300–Acute toxicity, Category 2: H300 Fatal if swallowed

H311–Acute toxicity, Category 3: H311 Toxic in contact with skin

H330–Acute toxicity, Category 2: H330 Fatal if inhaled

H314–Skin corrosion/irritation, Category 1: H314 Causes severe skin burns and eye damage

H318–Serious eye damage/eye irritation, Category 1: H318 Causes serious eye damage

H334–Respiratory sensitization, Category 1: H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

Ammonium dichromate, JUNSEI CHEMICAL CO., LTD., 53077jis_J_E1-3, 11/Jul/2023

H317–Skin sensitization, Category 1: H317 May cause an allergic skin reaction

H340–Germ cell mutagenicity, Category 1B: H340 May cause genetic defects

H350–Carcinogenicity, Category 1A: H350 May cause cancer

H360–Reproductive toxicity, Category 1B H360 May damage fertility or the unborn child

H370–STOT – single exposure, Category 1: H370 Causes damage to organs

H372–STOT – Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN

IMDG Code, 2020 Edition (Incorporating Amendment 40–20)

IATA Dangerous Goods Regulations (64th Edition) 2023

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2022 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2022 Recommendation on TLVs (JSOH)

Notification No. 0111–1 (January 11, 2022), Chemical Hazards Control Division, Industrial Safety and Health Department, Labour Standards Bureau, MHLW in Japan

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.22(<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

(https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop)

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, METI)

Abbreviations and acronyms

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)

IARC (International Agency for Research on Cancer)

ACGIH (American Conference of Governmental Industrial Hygienists)

EPA (US Environmental Protection Agency)

NTP (US National Toxicology Program)

JSOH (Japan Society for Occupational Health)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2021).